

Notice of Allowability

Application No.

10/626,698

Applicant(s)

CHOU ET AL.

Examiner

Antonio A. Caschera

Art Unit

2628

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to AF amendment filed 04/10/07.
2. ☒ The allowed claim(s) is/are 9-18.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in the pending application.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Alun Palmer on 05/01/07. The substance of the interview can be seen in the attached Examiner-Initiated Interview Summary form.

The application is amended as follows:

Please amend the claims as follows:

- 1-8. *(Cancelled)*
9. *(Currently Amended)* A multilevel texture processing method for mapping an image onto a 3D model with a texture mapping, the method comprising the steps of:
providing the image to the 3D model;
converting the image and the texture mapping to a common spatial coordinate system
and dividing them into a plurality of polygons;

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comparing the image with the texture mapping within the spatial coordinate system to extract overlapped polygons;

using the pixel intensity of the overlapped polygons to compute a statistics mean for adjusting the pixel intensity of the image accordingly;

using a prescribed condition to select the texture of one of the image and the texture mapping as the texture of ~~the polygon~~ a polygon of the overlapped polygons;

smoothing the texture of the polygon;

making the pixels inside the polygon continuous; and

restoring the polygon and storing the 3D model in memory,

wherein the pixel intensity of the image is adjusted by a formula;

$$I'_s(X_i, Y_i) = I_s(X_i, Y_i) - \mu_s + \mu_b,$$

μ_s representing the averaged pixel intensity of the overlapped polygons on the 3D model, μ_b representing the averaged pixel intensity of the overlapped polygons of the input image, $I_s(X_i, Y_i)$ representing the pixel intensity of each point on the 3D model, and $I'_s(X_i, Y_i)$ representing the adjusted pixel intensity of each point on the 3D model.

10-11. (Previously Presented)

12. (Currently Amended) The method of claim 11, wherein the texture normalization uses the pixel intensities of the overlapped polygons in both the image and the texture mapping to compute a weighted average for adjustment.

13-16. (Previously Presented)

17. (Currently Amended) The method of claim 16, wherein the step of computing a weighted average of the intensities of the pixel and its neighboring pixels as a new intensity of the pixel is followed by the steps of:

computing the difference between the weighted average intensity and the original pixel intensity; and

using the pixel intensity difference to adjust the intensities of the rest of the pixels inside the ~~polygonal~~polygon texture.

18. (Currently Amended) The method of claim 17, wherein the intensities of the rest of the pixels inside the ~~polygonal~~polygon texture is adjusted by a formula:

$$T'_s(x, y) = T_s(x, y) + \sum_{i=1}^N w_i * Id_i$$

w_i representing a relevant weight, Id_i representing the pixel intensity difference, N representing the number of total adjustments, $T_s(x, y)$ representing the pixel intensity of each point on the 3D model, and $T'_s(x, y)$ is the adjusted pixel intensity of each point on the 3D model.

Allowable Subject Matter

3. Claims 9-18 are allowed.

The following is an examiner's statement of reasons for allowance:

In reference to claim 9, the prior art of record does not explicitly disclose multilevel texture mapping an image onto a 3D model with further adjusting the pixel intensity of the image using the explicit formula as recited in claim 9, in combination with the further limitations of claim 9.

In reference to claims 10-18, claims 10-18 depend upon allowable claim 9 and are therefore also deemed allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

4. The cancellation of claims 1-8 is noted which were the only remaining rejected claims. Claims 9-18 were previously indicated as allowable and therefore, the application is in condition for allowance.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Antonio Caschera whose telephone number is (571) 272-7781. The examiner can normally be reached Monday-Thursday and alternate Fridays between 7:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung, can be reached at (571) 272-7794.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

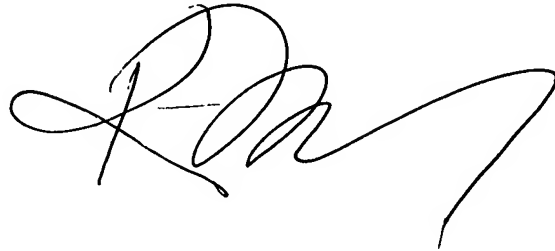
571-273-8300 (Central Fax)

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (571) 272-2600.

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5/3/07

Antonio Caschera
Patent Examiner



KEE M. TUNG
SUPERVISORY PATENT EXAMINER